

Customer No.: 31561
Application No.: 10605,034
Docket No.: 10231-US-PA

Claim 19. (original) The chip package structure of claim 14, wherein a material of the stiffener is copper.

Claims 20-23 (cancelled)

REMARKS

Present Status of Application

The Office Action dated August 11, 2004, objected the title and the specification. Claims 1-3, 5 and 7-13 were rejected under 35 USC§102(e) as being anticipated by Nakayama (US Patent Publication No. 2003/016549). Claims 4 and 20-23 were rejected under 35 USC§103(a) as being unpatentable over Nakayama in view of Wang (US Patent No. 5,977,626). Claims 6 and 14-19 were rejected under 35 USC§103(a) as being unpatentable over Nakayama.

Claims 1, 9 and 14 have been amended for providing more descriptions, while claims 2, 10, 17 and 20-23 have been cancelled. The specification has been amended for correcting informalities. No new matter has been added to the application by the amendments made to the specification, claims and drawings. This Amendment is promptly filed to place the above-captioned case in condition for allowance. After entering the amendments, a notice of allowance is respectfully solicited.

Discussion for objections

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The specification was objected for informalities.

The specification been amended to correct informalities as suggested by the

Office Action

The title was objected for not being descriptive.

The title has been amended to provide more descriptions for clarification.

Withdrawal of these objections is respectfully requested.

Discussion for 35 USC§102 and 103 rejections

Claims 1-3, 5 and 7-13 were rejected under 35 USC§102(e) as being anticipated by Nakayama (US Patent Publication No. 2003/016549). Claims 4 and 20-23 were rejected under 35 USC§103(a) as being unpatentable over Nakayama in view of Wang (US Patent No. 5,977,626). Claims 6 and 14-19 were rejected under 35 USC§103(a) as being unpatentable over Nakayama.

Claims 1, 9 and 14 have been amended to provide more detailed descriptions fro clarification purposes. Claims 2 and 10 have been cancelled.

Applicants submit that independent claims 1, 9 and 14 patently define over the prior references for at least the reason that the cited art fails to disclose each and every feature as claimed in the present invention.

As amended, the independent claims respectively recite:

*1. A chip package structure process, comprising:
providing a matrix substrate;
disposing a plurality of chips on the matrix substrate and the chips are electrically*

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connected to the matrix substrate;

disposing a stiffener on the matrix substrate, wherein the stiffener includes an outer surface and an opposite inner surface and the inner surface of the stiffener faces the matrix substrate, and wherein the stiffener has a plurality of openings and the chips are completely exposed by the openings of the stiffener;

providing a molding compound to cover the chips, the matrix substrate, the outer surface and the inner surface of the stiffener; and

dicing the molding compound, the matrix substrate and the stiffener to form a plurality of chip package structures.

9. A chip package structure, comprising:

a substrate;

a chip, disposed on the substrate and electrically connected to the substrate;

a stiffener, disposed on the substrate, wherein the stiffener includes an outer surface and an opposite inner surface and the inner surface of the stiffener faces the substrate, and wherein the stiffener has at least an opening and the chip is completely exposed by the opening; and

a molding compound, covering the chips, the matrix substrate, the outer surface and the inner surface of the stiffener.

14. A chip package structure, comprising:

a thin substrate, wherein the thin substrate has a thickness of between about 0.1mm and about 0.5 mm;

a chip, disposed on the thin substrate and electrically connected to the thin substrate;

a stiffener, disposed on the thin substrate, and wherein the stiffener has at least an opening and the chip is completely exposed by the opening; and

a molding compound, covering the chips, the thin substrate and the stiffener.

Applicant respectfully asserts that claim 1, 9 or 14 is patentably distinct from the prior art process or structure. Especially, the process or the structure at least

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comprises the stiffener having a plurality of openings and the chips being completely exposed by the openings.

Nakayama discloses mounting the chip 20 to the interposer substrate 10 through wire connection. As shown in Figure 20, a heat sink set 120 is provided and set in the cavity 42 of the mold 40. The heat sink set 120 includes multiple heat sinks 122, supports 124 and outside heat sink frame 126. As shown in Nakayama's Figures 20-21, after placing the substrate 10 (mounted with the chip 20) to the mold 40, the chips 20 are aligned with the heat sinks 122. As taught by Nakayama, the heat sink 122 is positioned away from the wires 24 (but aligning with the chip 20) for preventing electrical signal interferences (paragraph [0130]).

The Office Action considered Nakayama's heat sink 122(120) comparable to the stiffener of this invention. However, nothing is taught or mentioned in Nakayama's statements that the stiffener having a plurality of openings and after disposing the stiffener on the substrate the chips being completely exposed by the openings.

Accordingly, Nakayama fails to teach or disclose all limitations as recited in the independent claims 1 and 9. Claims 3, 5, 7-8 and 11-13 depend from independent claims 1 and 9, and therefore are not anticipated by the reference Nakayama for at least the reasons noted above, as well as for the additional features recited therein. Therefore, reconsideration and withdrawal of these 102 rejections are respectfully requested.

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The Office Action considered that Nakayama showed substantially the process or structure of the invention and relied on Wong for teaching the adhesive layer, and further Nakayama's other embodiment (Figure 4) for teaching solder balls.

Claim 14 has been amended for clarification purposes, while claim 17 and 20-23 have been cancelled.

As discussed above, the process or the structure of the present invention is patentably distinct from the prior art reference because Nakayama fails to disclose all limitations of claim 1 or 9 or 14. However, none of the references is able to remedy the deficiencies of the reference Nakayama. Therefore, it is respectfully submitted that claims 4, 6, 15-16 and 18-19 patentably distinguish over the cited references, either alone or in combination, for at least the reasons stated above as well as for the additional features that these claims recite.

Withdrawal of these rejections under 35 USC 103(a) is respectfully requested.

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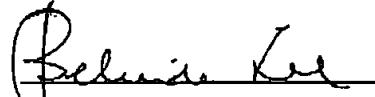
CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Respectfully submitted,

Date :

Nov. 11, 2004


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